Listing of Claims

1.   (Currently Amended) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option; and, wherein performing said SVD call processing includes:

providing said SVD service by transmitting and or receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein providing said SVD service comprises: at least one of

transforming a packet data frame into a data RLP frame; or

transforming a voice frame into a voice RLP frame;

multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and

transmitting said RLP frame, wherein a type of the voice RLP frame is designated by information included in using a frame type field or a control field not used for data in the at least one data RLP frame.

2.   (Currently Amended) The method of claim 1, wherein performing said SVD call processing designates and uses a service reference ID for a new the SVD service option, which is different from a pre-designated voice service option or packet data service option.

3.   (Currently Amended) The method of claim 1, further comprising

implementing in a media access control (MAC) sub-layer a voice RLP module,

wherein the voice RLP module transforms the ~~which assembles~~ voice frame into

the voice RLP frame to be included in said RLP frame, so ~~frames into RLP frames such~~ that

voice and packet data can be transmitted together in said ~~and received based on the at least one~~

RLP frame, and wherein the voice RLP module transforms a voice RLP frame included in

another RLP frame received through a physical layer into a voice frame for processing by an

upper layer.

4.   (Currently Amended) A method of providing simultaneous voice and data (SVD)

service in a mobile communication system, comprising

performing SVD call processing that supports SVD service between mobile

terminals and base stations by using a SVD service option~~; and,~~ wherein performing said SVD

call processing includes:

providing said SVD service by transmitting ~~and~~ or receiving voice and packet data

simultaneously using at least one radio link protocol (RLP) frame after service negotiation is

performed using the SVD service option, wherein providing the SVD service ~~is provided by~~

includes:

designating a voice RLP frame type using one or more bit combinations ~~not~~

~~designated~~ in a frame type field not used for data in ~~of~~ a data RLP frame, ~~in order to transmit~~

~~and receive the voice and packet data using the at least one RLP frame~~ <u>the voice RLP frame</u> <u>generated based on the voice data and the data RLP frame generated based on the packet data;</u>

<u>multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and</u>

<u>transmitting said RLP frame.</u>

5.   (Currently Amended) A method of providing simultaneous voice and data (SVD) service in a mobile communication system, comprising

performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option~~; and,~~ <u>wherein performing said SVD call processing includes:</u>

providing <u>said</u> SVD service by transmitting ~~and~~ <u>or</u> receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein <u>providing</u> the SVD service ~~is further provided by~~ <u>includes:</u>

designating a voice RLP frame type using one or more bit combinations ~~not designated~~ in a control field <u>not used for data in</u> [[of]] a data RLP frame, ~~in order to transmit and receive the voice and packet data using the at least one RLP frame~~ <u>the voice RLP frame generated based on the voice data and the data RLP frame generated based on the packet data;</u>

<u>multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and</u>

<u>transmitting said RLP frame.</u>

6.   (Canceled)

7.   (Currently Amended) The method of claim 1, wherein the voice frame <u>type</u> is ~~transformed into the voice RLP frame by~~ <u>designated</u> using one or more bit combinations ~~not used~~ in the frame type field <u>not used for data in</u> ~~of~~ the data RLP frame, if the voice frame is a full rate voice frame.

8.   (Currently Amended) The method of claim 7, wherein the voice RLP frame<u>,</u> <u>which is generated</u> ~~transformed~~ from the full rate voice frame<u>,</u> comprises 168 bits of voice frame information[[,]] and 3 bits of ~~frame type~~ information indicating ~~which frame type is~~ the voice RLP frame type.

9.   (Currently Amended) The method of claim 1, wherein the voice frame <u>type</u> is ~~transformed into the voice RLP frame by~~ <u>designated</u> using one or more bit combinations ~~not used~~ in the control field <u>not used for data in</u> ~~of~~ the data RLP frame, if the voice frame is a half rate voice frame or a voice frame under 1/2 rate.

10.   (Currently Amended) The method of claim 9, wherein the data RLP frame ~~used for transforming the half rate voice frame or voice frame under 1/2 rate into the voice RLP frame~~ is one of control frame, fragmented/assembled data frame, fill frame<u>, or</u> ~~and~~ idle frame.

11.   (Currently Amended) The method of claim 9, wherein the voice RLP frame is a ~~transformed from the~~ half rate voice RLP frame or a voice RLP frame under 1/2 rate ~~is a half or 1/2 rate voice RLP frame,~~ comprising 8 bits and 66 bits of voice frame information and wherein 6 bits of control field information are used to indicate the ~~indicating which frame type is a~~ voice RLP frame type.

12.   (Currently Amended) The method of claim 9, wherein the voice RLP frame is a ~~transformed from the half rate voice frame or voice frame under 1/2 rate is a quarter or~~ 1/4 rate voice RLP frame comprising 8 bits and 26 bits of voice frame information and wherein 6 bits of control field information are used to indicate the ~~indicating which frame type is a~~ voice RLP frame type.

13.   (Currently Amended) The method of claim 9, wherein the voice RLP frame is a ~~transformed from the half rate voice frame or voice frame under 1/2 rate is an eighth or~~ 1/8 rate voice RLP frame comprising 8 bits and 6 bits of voice frame information and wherein 6 bits of control field information are used to indicate the ~~indicating which frame type is a~~ voice RLP frame type.

14.   (Currently Amended) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports an SVD service through a SVD request signaling message exchange, when SVD service is requested after packet data call setup

between a mobile terminal and a base station is completed; and, wherein performing said SVD

call processing includes:

provding said SVD service by transmitting and or receiving voice and packet data

simultaneously using at least one radio link protocol (RLP) frame after service negotiation is

performed through the SVD request signaling message exchange, wherein providing the SVD

service includes:

designating a voice RLP frame type using one or more bit combinations not

designated in a frame type field not used for data in of a data RLP frame, in order to transmit

and receive the voice and packet data based on the at least one RLP frame; the voice RLP frame

generated based on the voice data and the data RLP frame generated based on the packet data;

multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and

transmitting said RLP frame.

15.   (Currently Amended) The method of claim 14, further comprising implementing

in a media access control (MAC) sub-layer a voice RLP module, which assembles transforms the

voice frame frames into the RLP frame so frames such that the voice RLP frame and packet data

RLP frame can be multiplexed and transmitted in the and received based on the at least one RLP

frame.

16.   (Canceled)

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17.   (Currently Amended) A method of providing simultaneous voice and data (SVD)

service in a mobile communication system, comprising

performing SVD call processing that supports SVD service through SVD request

signaling message exchange, when SVD service is requested after packet data call setup between

a mobile terminal and a base station is completed; and, wherein performing said SVD call

processing includes:

providing said SVD service by transmitting and or receiving voice and packet data

simultaneously using at least one radio link protocol (RLP) frame after service negotiation is

performed through the SVD request signaling message exchange, wherein providing the SVD

service includes:

designating a voice RLP frame type using one or more bit combinations not

designated in a control field not used for data in of a data RLP frame, in order to transmit and

receive the voice and packet data based on the at least one RLP frame; the voice RLP frame

generated based on the voice data and the data RLP frame generated based on the packet data;

multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and

transmitting said RLP frame.

18.   (Currently Amended) A method of providing simultaneous voice and data (SVD)

service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service through SVD request

signaling message exchange, when SVD service is requested after packet data call setup between

a mobile terminal and a base station is completed; and, wherein performing said SVD call

processing includes:

        providing said SVD service by transmitting and or receiving voice and packet data

simultaneously using at least one radio link protocol (RLP) frame after service negotiation is

performed through the SVD request signaling message exchange, wherein providing said SVD

service comprises: at least one of

        transforming a packet data frame into a data RLP frame; or

        transforming a voice frame into a voice RLP frame;

        multiplexing the data RLP frame and voice RLP frame to form said RLP frame; and

        transmitting said RLP frame, wherein a type of the voice RLP frame is designated

by information included in by using a frame type field or a control field not used for data in the

at least one data RLP frame.

     19.   (Currently Amended) The method of claim 18, wherein the voice RLP frame type

is designated transformed into the voice RLP frame by using bit combinations not used in the

frame type field not used for data in of the data RLP frame, if the voice frame is full rate voice

frame.

20.   (Currently Amended) The method of claim 19, wherein the voice RLP frame ~~transformed from the full rate voice frame~~ comprises 168 bits of voice frame information, and wherein 3 bits of frame type information are used to indicate the ~~indicating which frame type is~~ the voice RLP frame type.

21.   (Currently Amended) The method of claim 18, wherein the voice <u>RLP</u> frame <u>type</u> is <u>designated</u> ~~transformed into the voice RLP frame by~~ using bit combinations ~~not used~~ in the control field <u>not used for data in</u> ~~of~~ the data RLP frame, if the voice frame is a half rate voice frame or a voice frame under 1/2 rate.

22.   (Currently Amended) The method of claim 21, wherein the data RLP frame ~~used for transforming the half rate voice frame or voice frame under 1/2 rate into the voice RLP frame~~ is one of control frame, fragmented/assembled data frame, fill frame<u>, or</u> ~~and~~ idle frame.

23.   (Currently Amended) The method of claim 21, wherein the voice RLP frame ~~transformed from the half rate voice frame or voice frame under 1/2 rate~~ is a ~~half or~~ 1/2 rate voice RLP frame comprising 8 bits and 66 bits of voice frame information and <u>wherein</u> 6 bits of control field information <u>are used to indicate the</u> ~~indicating which frame type is a~~ voice RLP frame type.

24.   (Currently Amended) The method of claim 21, wherein the voice RLP frame

~~transformed from the half rate voice frame or voice frame under 1/2 rate~~ is a ~~quarter or~~ 1/4 rate

voice RLP frame comprising 8 bits and 26 bits of voice frame information and <u>wherein</u> 6 bits of

control field information <u>are used to indicate the</u> ~~indicating which frame type is a~~ voice RLP

frame type.

25.   (Currently Amended) The method of claim 21, wherein the voice RLP frame

~~transformed from the half rate voice frame or voice frame under 1/2 rate~~ is <u>a</u> ~~an eighth or~~ 1/8

rate voice RLP frame comprising 8 bits and 6 bits of voice frame information and <u>wherein</u> 6 bits

of control field information <u>are used to indicate the</u> ~~indicating which frame type is a~~ voice RLP

frame type.

26.   (Currently Amended) A mobile communication apparatus having a service

interface comprising:

        a voice radio link protocol (RLP) module <u>to transform voice data into a voice</u>

<u>RLP frame</u>; and

        a data RLP module at a MAC sub-layer <u>to transform packet data into a data RLP</u>

<u>frame</u>, wherein <u>the voice and data RLP frames are multiplexed and</u> ~~voice and packet data are~~

simultaneously transmitted together in an RLP frame based on outputs of the voice RLP module

and data RLP module, wherein ~~at least one of a packet data frame is transformed into a data~~

~~RLP frame or a voice frame is transformed into a voice RLP frame using~~ a frame type field or a

control field not used <u>for data</u> in the data RLP frame <u>is used to designate a type of the voice</u>

<u>RLP frame.</u>

27.   (Currently Amended) The apparatus of claim 26, wherein the data RLP module is

<u>also</u> configured to perform ~~at least one of~~ fragmentation of [[a]] packet data frame from ~~the~~

<u>another</u> RLP frame <u>received from a physical layer</u> ~~or assembly of a packet data frame into the~~

~~RLP frame~~.

28.   (Currently Amended) The apparatus of claim 26, the voice RLP module is <u>also</u>

configured to perform ~~at least one of~~ fragmentation of a voice frame <u>derived</u> from ~~the~~ <u>another</u>

RLP frame <u>received from a physical layer</u> ~~or assembly of the voice frame into the RLP frame~~.

29.   (Currently Amended) The apparatus of claim 26, wherein voice RLP frames are

classified into <u>one or more of</u> full rate voice RLP frames, half rate voice RLP frames, quarter

rate voice RLP frames<u>, or</u> ~~and~~ eighth rate voice RLP frames.

30.   (Previously Presented) The apparatus of claim 26, wherein the apparatus is at least

one of a mobile terminal and a base station.

31.   (Previously Presented) The apparatus of claim 26, wherein the apparatus is a mobile communication system comprising at least one mobile terminal and at least one base station.

32.   (Currently Amended) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option; and, wherein performing said SVD call processing includes:

providing said SVD service by transmitting and or receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein providing SVD service includes:

transforming a voice frame into a voice RLP frame; and

designating a type of the voice RLP frame in using a frame type field or a control field not used for data in the at least one a data RLP frame, wherein the voice and data RLP frames are multiplexed and transmitted in an RLP frame.

33.   (Currently Amended) A mobile communication apparatus having a service interface comprising:

a voice radio link protocol (RLP) module to transform a voice frame into a voice RLP frame; and

a data RLP module at a MAC sub-layer <u>to transmit packet data into a data RLP</u>

<u>frame</u>, wherein <u>the voice and data RLP frames are multiplexed and</u> ~~voice and packet data are~~

simultaneously transmitted together in an RLP frame based on outputs of the voice RLP module

and data RLP module, wherein ~~a voice frame is transformed into~~ a <u>type of the</u> voice RLP frame

<u>is designated</u> using <u>information in</u> a frame type field or a control field not used <u>for data</u> in the

data RLP frame.